

Application No. 10/069,753

REMARKS

Claims 1-20 are pending. By this Amendment, claims 1 and 5-8 are amended and new claims 11-20 are added. No new matter has been added. Reconsideration of the application in view of the amendments and the following remarks is respectfully requested.

I. Objection to the Drawings

The Office Action objects to Figs. 1a and 1b because they should be designated as --prior art--. Fig. 1a has been corrected to be designated as prior art. However, because Fig. 1b pertains to the subject matter of the invention, this figure has not been designated as prior art. Additionally, Fig. 4b is corrected to obviate a typographical error. Specifically, the input signal referenced ASX should be "accelerometer and readheads" and not "accelerometer and probe head."

Approval of the replacement sheets Figs. 1a and 4b is respectfully requested.

II. Objection to the Abstract

The Office Action objects to the Abstract as not being on a separate sheet. Accordingly, the Abstract is enclosed in this Amendment as a separate sheet. Withdrawal of the objection to the Abstract is respectfully requested.

III. Objection to the Specification

The Office Action objects to the arrangement of the specification, in particular, as not having sectional headings. Accordingly, the specification has been amended to include the sectional headings.

Withdrawal of the objection to the specification is respectfully requested.

IV. Objection to the Oath/Declaration

The Office Action objects to the Oath/Declaration because the Oath/Declaration does not acknowledge the filing of foreign application PCT/GB01/03026 on July 4, 2001.

Accordingly, an application data sheet is enclosed that complies with the requirements of 37 C.F.R. §1.63(c) and 37 C.F.R. §1.76.

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Withdrawal of the objection to the Oath/Declaration is respectfully requested.

V. Rejection Under 35 U.S.C. §102

Claims 1-10 stand rejected under 35 U.S.C. §102(b) as being anticipated by Campanile (U.S. Patent No. 5,778,549). The rejection is respectfully traversed.

In particular, Campanile does not teach, disclose or even suggest a method of correcting coordinate measurement errors produced by dynamic forces distorting parts of a machine including at least measuring the accelerations of a moving part of the machine, using position measuring devices of the machine to obtain signals indicative of the displacement of the machine part, applying a data fusion algorithm to obtain corrected values for the measured displacement of the moving part, wherein the data fusion algorithm double integrates the measured acceleration values to produce signals indicative of the displacement of the machine part due to the accelerations and combines the produced signal with the signals indicative of the displacement of the moving part, as recited in independent claim 1.

Instead, Campanile pertains to correcting for relative movements between the object being measured and the probe. See col. 1, lines 6-8. As such, the relative movements are not produced as a result of acceleration forces due to the movement of the probe. That is, the relative movements are produced by external factors.

As an example, Campanile discloses that a large number of sources causing vibrations are in use in factory workshops. See col. 1, lines 57-59. Thus, Campanile discloses that the object of the invention is to provide a measurement method of measurement device, which allows for reliable evaluation of measurement errors generated as a result of external interference effects. See col. 3, lines 36-39. As disclosed in Campanile, the relative movement between the measurement probe and the base unit caused by external interference effects such as shocks and vibrations is determined. See col. 4, lines 3-8.

The reason that Campanile is concerned with externally produced shocks and vibrations is because Campanile's machine is a Talysond or roundness measuring machine

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where the object being measured rotates. See col. 8, line 14. By having both the probe and the object in motion, there are two flexible earth couplings which causes relative movement between the probe and the object caused by external vibration. See Fig. 1.

As such, Campanile does not teach, disclose or even suggest correcting coordinate measurement errors produced by dynamic forces distorting parts of the machine, using position measuring devices of the machine to obtain signals indicative of the displacement of the machine part; applying a data fusion algorithm to obtain corrected values for the measured displacement of the moving part where the data fusion algorithm double integrates the measured acceleration values to produce signals indicative of a displacement of the machine part due to the accelerations, and combines the produced signal with the signals indicative of the displacement of the moving parts. Stated differently, Campanile does not contemplate where the object is stationary and remains stationary with respect to the machine and probe. Therefore, Campanile's device would not provide useful information to solve the problem of distortion of the machine's structure.

Accordingly, claim 1 define patentable subject matter. Claims 2-11 depend from the independent claims, and therefore also define patentable subject matter. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested.

Furthermore, Campanile does not teach, disclose or even suggest the newly added claims 12-20. In particular, Campanile does not teach, disclose or even suggest a data fusion algorithm for correcting measurement errors produced by a position measuring devices on a moving machine part comprising a) inputting a first signal which is indicative of the accelerations of a moving part of a machine, b) integrating the first signal twice to obtain a displacement signal indicative of the displacement of the moving part caused by acceleration effects of a movement, c) normalizing and resolving the doubly integrated first signal, d) inputting a second signal which is indicative of a displacement of the moving machine part

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caused by the movement, and e) adding the normalized and resolved first signal to the second signal to produce a position signal.

Claims 13-20 are at least allowable by virtue of their dependency on independent claim 12.

VI. Conclusion

In view of the foregoing amendments and remarks, this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-20 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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Attachments:

Abstract
Replacement Sheets (Figs. 1a and 4b)
Application Data Sheet

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